No. 23-2349

IN THE

United States Court of Appeals for the Federal Circuit

TACTION TECHNOLOGY, INC.,
Plaintiff-Appellant,

v.

APPLE INC.,
Defendant-Appellee.

On Appeal from the United States District Court
for the Southern District of California
No. 21-cv-812
Hon. Todd W. Robinson

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January 25, 2024

CLAIM LANGUAGE AT ISSUE

U.S. Patent No. 10,659,885

1. An apparatus for imparting motion to the skin of a user, the apparatus comprising:

a housing;

a plurality of coils capable of carrying electrical current;

a plurality of magnets arranged in operative proximity to the plurality of coils;

a moving portion comprising an inertial mass and the plurality of coils;

a suspension comprising a plurality of flexures that guides the moving portion in a planar motion with respect to the housing and plurality of conducive coils;

wherein movement of the moving portion is damped by a ferrofluid in physical contact with a least the moving portion; and

wherein the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz in response to electrical signals applied to the plurality of conductive coils.

U.S. Patent No. 10,820,117

1. An apparatus comprising:

a housing;

a plurality of conductive coils capable of carrying electrical current;

a plurality of magnets arranged in operative proximity to the plurality of conductive coils;

a moving portion comprising an inertial mass and the plurality of magnets;

a suspension comprising a plurality of flexures that guides the moving portion in a planar motion with respect to the housing and the plurality of conductive coils;

wherein vibration of the apparatus imparts vibrations to a user's skin;

wherein vibration of the apparatus is damped by a viscous ferrofluid in physical contact with at least the moving portion;

wherein the viscous ferrofluid reduces at least a resonance within a frequency range of 40-200 Hz in response to signals applied to the plurality of conductive coils;

wherein said moving portion includes at least a pocket that provides space for at least a magnet;

wherein each of said plurality of flexures is more resistant to motion transverse to a plane of the moving portion than it is to linear motion in the plane of the moving portion; and

wherein said housing is generally cuboid in shape.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CERTIFICATE OF INTEREST

Case Number 23-2349

Short Case Caption Taction Technology, Inc. v. Apple Inc.

Filing Party/Entity Apple Inc.

Instructions:

1. Complete each section of the form and select none or N/A if appropriate.
2. Please enter only one item per box; attach additional pages as needed, and check the box to indicate such pages are attached.
3. In answering Sections 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance.
4. Please do not duplicate entries within Section 5.
5. Counsel must file an amended Certificate of Interest within seven days after any information on this form changes. Fed. Cir. R. 47.4(c).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: 01/25/2024

Signature: /s/ Mark S. Davies

Name: Mark S. Davies

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	**2. Real Party in Interest.** Fed. Cir. R. 47.4(a)(2).	**3. Parent Corporations and Stockholders.** Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. ☑ None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. ☑ None/Not Applicable
Apple Inc.		

☐ Additional pages attached

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable ☐ Additional pages attached

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Jacqueline Tio Ryan O'Connor Fish & Richardson P.C.	Qiuyi Wu Fish & Richardson P.C.	Daniela Glaser Fish & Richardson P.C.

5. Related Cases. Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

☐ Yes (file separate notice; see below) ☑ No ☐ N/A (amicus/movant)

If yes, concurrently file a separate Notice of Related Case Information that complies with Fed. Cir. R. 47.5(b). **Please do not duplicate information.** This separate Notice must only be filed with the first Certificate of Interest or, subsequently, if information changes during the pendency of the appeal. Fed. Cir. R. 47.5(b).

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

☑ None/Not Applicable ☐ Additional pages attached

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STATEMENT OF RELATED CASES

Counsel are not aware of any cases in this or any other court or agency that will directly affect or be directly affected by this Court's decision in the pending appeal, within the meaning of Fed. Cir. R. 47.5(b) and the accompanying practice note. The case listed as a related case in Taction's Opening Brief—*Taction Technology, Inc. v. Apple Inc.*, No. 3:21-cv-00812-TWR-JLB (S.D. Cal.)—is the district court case that led to this appeal.

INTRODUCTION

This is a legally straightforward case in a technically complex setting. The district court developed a thorough understanding of any inventions disclosed by the asserted patents and a careful understanding of the relevant accused products. The court then applied local patent rules and this Court's precedent to grant summary judgment, ending the litigation. The district court reached the right outcome.

The setting involves haptic feedback. Haptic feedback refers to the physical vibrations used to engage an electronic device user. For many years, transducers—which produce haptic feedback—have used mechanical techniques, such as magnetic oils, for damping, or slowing, these vibrations.

Apple's "Taptic Engine" is a transducer that is part of Apple's advanced haptic interface. When an iPhone user feels vibrations in response to a "button click," these vibrations result from Apple's Taptic Engine moving a small mass. Rather than using mechanical damping, the Taptic Engine uses software and hardware to precisely control the vibrations.

Plaintiff Taction Technology, Inc., makes audio equipment that adds haptic feedback to allow listeners to feel deep bass. Its patents disclose a conventional electromechanical vibration motor that uses mechanical damping to not interfere with the audio.

In this action, Taction tried to map its patents onto Apple's Taptic Engine. But Taction could do so only by dramatically shifting its infringement theory as the case progressed.

The district court rejected Taction's "'shifting sands' approach" and granted Apple summary judgment for three reasons. *O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1364 (Fed. Cir. 2006). First, it struck the new "highly damped output" infringement theory advanced by Taction's expert—without which Taction had no evidence of infringement—recognizing that Taction had not disclosed this theory in Taction's final infringement contentions as required under Southern District of California Patent Local Rule 3.1(c). Second, the district court refined its construction of "highly damped output" to clarify that the claimed transducer's highly damped output is achieved by the mechanical forms of damping disclosed by the patents. And

third, it ruled that the claims require a "quality-factor" of less than 1.5, indicating that the transducer's vibrations dissipate fairly quickly.

There is no dispute that this Court reviews a district court's application of its local patent rules for abuse of discretion, and there is no dispute that Apple's Taptic Engine does not use mechanical damping to create highly damped output nor does it have a Q-factor of less than 1.5. The district court's application of its local rules was within its discretion, and its claim construction is correct in light of the specification and claims. This Court should affirm.

STATEMENT OF THE ISSUES

1. Did the district court act within its discretion by applying Patent Local Rule 3.1(c) to strike Dr. Oliver's infringement theory, and therefore correctly grant Apple summary judgment of non-infringement, where Dr. Oliver's theory was not disclosed in Taction's final infringement contentions as the Rule requires?

2.A. Did the district court correctly limit the claim scope to transducers with "highly damped output" where the applicant (a) told the Examiner the invention is "directed to transducers with highly damped output"; (b) cited portions of the specification that require highly damped output; (c) disparaged transducers lacking that feature as "problematic"; and (d) included Figures illustrating highly damped output?

2.B. Did the district court correctly limit the claim scope to require that highly damped output is achieved by mechanical damping, and therefore correctly grant Apple summary judgment, where the patents exclusively disclose mechanical damping and a broader construction would render the claims invalid for lack of written description?

2.C. Did the district court correctly limit the claim scope to require that the transducer have a Q-factor below 1.5, and therefore correctly grant Apple summary judgment, where the specification disparages transducers with a Q-factor greater than 1.5?

STATEMENT OF THE CASE

Apple's Taptic Engine Uses Sophisticated Closed Loop Control To Produce Vibrations.

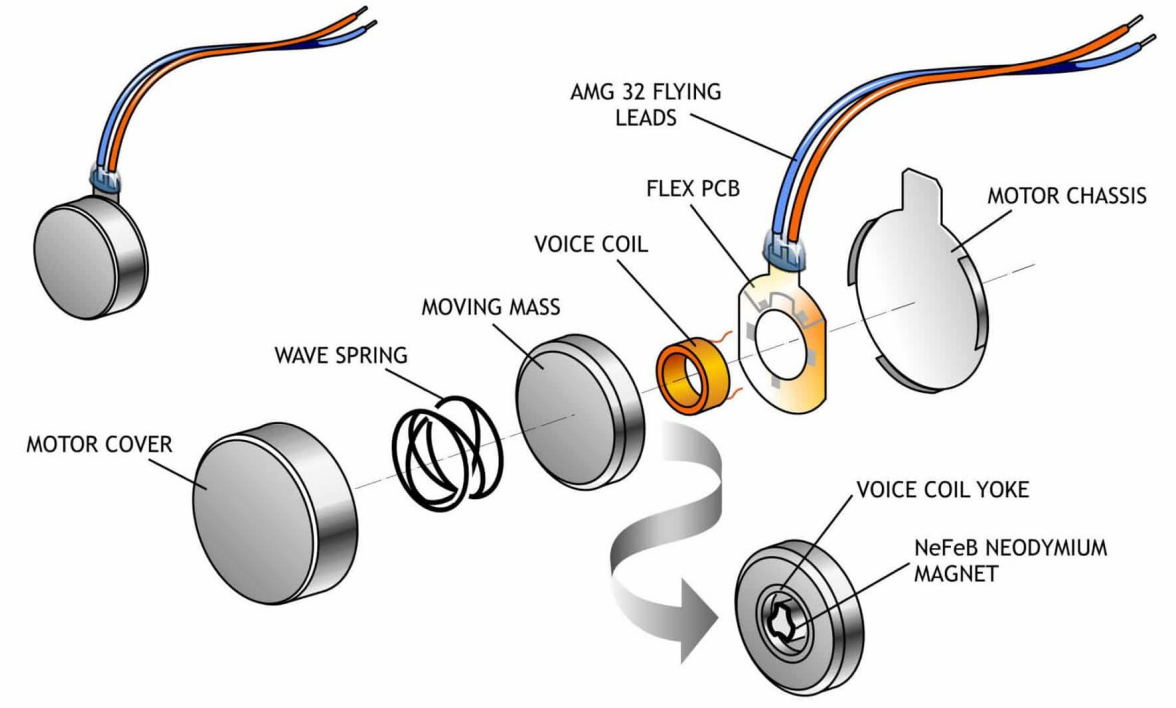
For many years, Apple has innovated in haptics technology, which uses actuators to create tactile feedback, the perceptible vibrations that signal an incoming call or acknowledge a user pressing a touch screen button.[1] Appx362 ¶¶ 1-3; Appx992 ¶ 26.

Apple's innovative Taptic Engine operates differently from prior actuators. An actuator creates vibrations by moving a mass within its housing. The Taptic Engine uses a sophisticated closed loop controller—hardware and software that sense the position of the actuator's moving mass and constantly tailor the input electrical signal

[1] An actuator is a type of transducer that converts electrical energy into mechanical energy in the form of vibrations. Appx992 ¶ 27; OB5; Appx177.

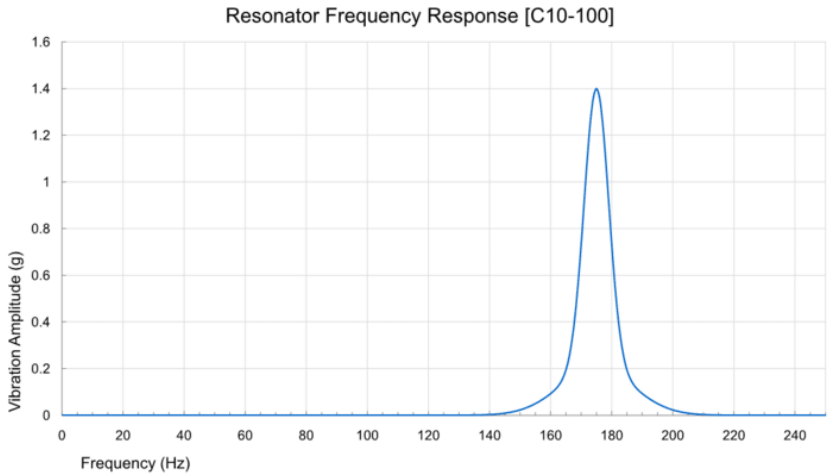
that moves it—to generate vibrations precisely and efficiently over a wide range of frequencies.

By contrast, prior art actuators create vibrations over a narrow range of frequencies. For example, one type of actuator known as a linear resonant actuator ("LRA"), typically includes magnets and a mass that can move in a straight line. Appx992 ¶¶ 28, 29.



Appx993 ¶ 31; Appx3145. When an alternating electrical current is applied as input, the coils apply a corresponding alternating force to the moving mass, shaking it back and forth and producing vibrations as output. Appx992-995 ¶¶ 27-36. The rate at which the mass oscillates is known as the frequency of the vibration, and the displacement, velocity,

or acceleration of the movement can be measured and visualized in frequency response graphs, such as the example below.



Appx996 ¶ 40. LRAs typically operate at or near the natural frequency at which the actuator vibrates, known as the resonant frequency. Appx995. Think of a tuning fork: When hit, it vibrates at a natural frequency, giving off a particular tone. Appx996 ¶ 39. In the same way, when the input frequency applied to the current-carrying coils matches the resonant frequency of the LRA, the moving mass oscillates much more strongly, producing noticeable vibrations. Appx996 ¶ 39. Thus, frequency response graphs of LRAs display a "resonance peak" at the resonant frequency of the LRA. Appx182. For example, in the above graph, the vibration amplitude peaks at the resonant frequency of about 175 Hz, and the tested actuator produces significantly more movement

between 160 Hz and 190 Hz, with a steep rise and drop-off in vibration strength around the peak.

When the input signal ceases, however, the vibrations should also stop. For this reason, actuators typically include mechanical "damping" that impedes the movement of the mass to stop vibrations more quickly. Appx996-997 ¶ 41. One such damping mechanism is ferrofluid, a viscous oil with iron particles in suspension, making it magnetic (and thus stick well to magnets). Appx999 ¶ 48. Known since the 1960s, ferrofluid has many uses, including damping audio speakers by creating drag on the moving portion of the speaker. Appx1821-1822; Appx3401. In other words, ferrofluid damping alters the *output* motion that causes vibrations.

A quality factor ("Q-factor") measures how damped an oscillator is relative to its mass. Appx998 ¶ 43. A high Q-factor indicates a low rate of energy loss; oscillations die out more slowly and exhibit a sharper resonance peak. Appx998 ¶ 44; Appx999 ¶ 46. A low Q-factor (*e.g.*, below 1.5) indicates more rapid energy loss and exhibits a flat or nonexistent resonance peak. Appx998-999 ¶¶ 45-46.

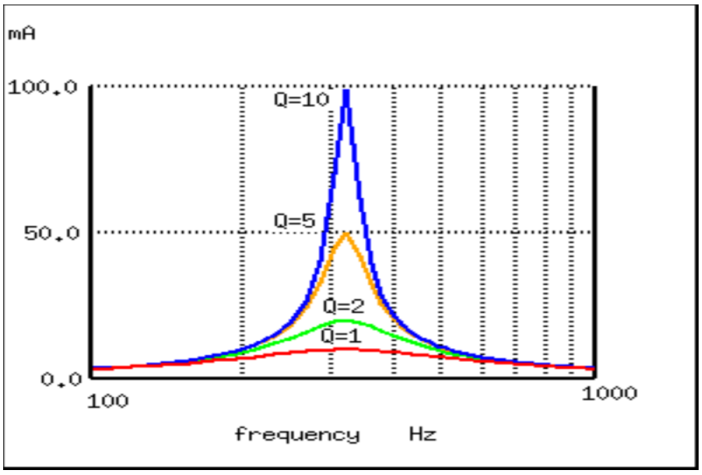


Figure 6.34: *A high Q resonant circuit has a narrow bandwidth as compared to a low Q*

Appx1391; *see also* Appx999 ¶ 45. An actuator with a Q-factor greater than 0.5—like those shown in the graph above—is "underdamped." Appx186 (27:17-18). An actuator with a Q-factor less than 0.5 is "[o]verdamped." Appx186 (27:19-20); *see also* Appx3153.

And an actuator with a Q-factor of 0.5 is "critically damped." Appx186 (27:16-17).

Apple's Taptic Engine operates entirely differently from an LRA. It is controlled by sophisticated hardware and software invented by Apple, referred to as the closed loop controller (CLC). Appx3401; *see also* Appx3474-3478 ¶¶ 108-109. In contrast to LRAs, the Taptic Engine's CLC is an electronically-based active control mechanism that "includes complex sensing algorithms that determine the precise

position of the moving mass" and "alters the *input signal* … to achieve a desired movement" over a wide range of frequencies. Appx3400-3401. Apple's Taptic Engine "measures the position of the moving mass and uses that sensed location" to "correct the input drive signal" and produce precise haptic feedback. Appx3547-3548 ¶ 608; Appx335-336; Appx949; Appx3548 n.408.[2] Apple uses ferrofluid only to reduce unwanted out-of-plane (vertical and sideways) motion. Appx3401. The Taptic Engine's CLC—not ferrofluid—controls the mass's planar motion and allows the Taptic Engine to operate at a wide range of frequencies.

Taction's Patents Describe Vibration Modules That Use Mechanical Damping To Produce Highly Damped Output.

Taction developed headphones that use vibration to allow listeners to feel "deep bass." Appx949. Taction owns U.S. Patent Nos. 10,659,885 ("'885 patent") and 10,820,117 ("'117 patent") (collectively, "the asserted patents"). Appx109; Appx134. The asserted patents, both entitled "Systems and Methods for Generating Damped

[2] The difference between Apple's novel CLC and mechanical damping can be understood by analogy to a child on a swing. Mechanical damping corresponds to the child dragging her feet to slow the swing. The CLC, by contrast, corresponds to having someone hold the swing and move it into the desired position at all times—regardless of whether the child drags her feet. Appx3401.

Electromagnetically Actuated Planar Motion for Audio-Frequency Vibrations," share a specification and disclose actuators that provide tactile feedback to a user and that are particularly useful in headphones. Appx109 (Abstract); *see also* Appx126 (1:19-20, 25-33). The claimed vibration module, shown below, includes a housing/frame 405 (green), a moving retainer 403 (which includes magnets, red, and a mass, orange) (collectively, blue), a coil 407 (purple), and flexures 406 (yellow). Appx129 (8:16-25).

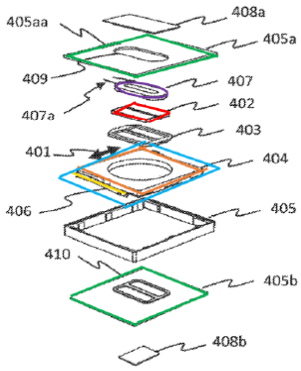


FIG . 4B

Appx462 (annotating Fig. 4B of the asserted patents). When a current passes through the coil (purple), lateral forces are generated on the magnets (red), causing the moving retainer to oscillate. Appx129 (8:22-25).

The specification describes various prior art transducers and their shortcomings, all revolving around poor audio quality. *See, e.g.*,

Appx127 (3:46-47) ("[T]here exists a need for novel audio-frequency tactile transducers …."). The specification begins by discussing "axial shakers," which produced "unwanted acoustic noise." Appx126 (1:34-44). The specification also criticizes the prior art for lacking "mechanical damping." Appx126 (2:1-2). The specification specifically discusses "un-damped [ERMs]" and "un-damped [LRAs]" and describes why each was "problematic." Appx126 (2:11-13). According to the specification, ERMs were unsatisfactory because of the delay between the time it took to "produce[] an acceleration large enough to be felt" and the "impulse signal," and because frequency and acceleration are "linked and cannot be varied independently," which is "incompatible with acoustic fidelity." Appx126 (2:15-24).

LRAs, as described by the specification, were problematic because "they resonate at a single frequency and produce perceptible vibration at only that frequency." Appx126 (2:25-29). The specification further explains that:

> a typical LRA might produce up to 1.5 g of acceleration at 175 $\pm$ 10 Hz, but less than 0.05 g outside this 20 Hz range. Such a high Q-factor renders this sort of device useless for high fidelity reproduction of low frequency tactile effects in the 15-120 Hz range.

Appx126 (2:29-34). And, when used in headphones, LRAs were previously oriented to have the vibrating module move "parallel with the surface of the side of the head" (referred to as in-plane motion) to reduce unwanted acoustic noise. Appx126 (2:47-60). These in-plane LRAs, however, were "underdamped, with a claimed Q-factor of 1.5 to 3." Appx126 (2:60-67).

Due to its headphone business, Taction considered the underdamping of prior art actuators to be a particularly important shortcoming. As Taction's website described, speakers and headphones need a "flat" response curve because "[f]latter is more accurate" to what musicians record. Appx1026-1027.

That was exactly what the asserted patents sought to provide. The patents purport to improve on prior art systems by producing motion that "is substantially uniform over the range of 40-200 Hz" to produce a flat frequency response (and, in turn, higher quality audio). Appx127 (3:51-58). Figure 5C shows the "relatively uniform, non-

peaked … response … between 40 and 200 Hz," the normal operating frequency range of the transducer.[3] Appx130 (9:36-41).

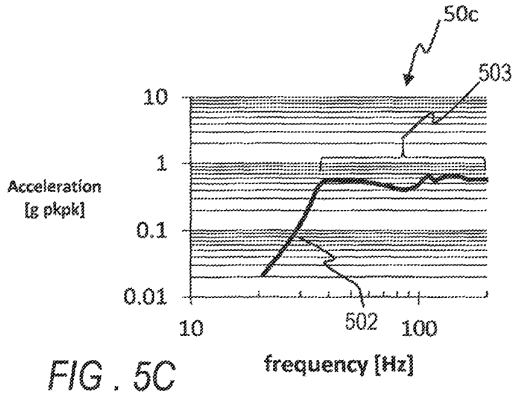


FIG . 5C

Appx116 (Fig. 5C). As described in the specification, the "relatively uniform, non-peaked … response … makes it possible to reproduce the tactile component of a musical experience with previously unattainable high fidelity." Appx130 (9:39-44); *see also* Appx1026 (Taction describing its transducer, which is an embodiment of the claimed vibration module, as the "flattest tactile driver ever produced").

Taction also emphasized the significance of this "substantially uniform" response in the claimed vibration module during the prosecution of U.S. Patent No. 10,812,913 (the '913 patent) (then U.S.

[3] The specification interchangeably refers to this "flat" response as "substantially uniform," Appx109 (Abstract); Appx127 (3:56-58), "relatively uniform," Appx130 (9:39-40), and "approximately uniform" Appx128 (5:50-51).

Patent Application No. 15/222,394), a parent application to the asserted patents. The Examiner initially rejected claim 15 of the '913 patent as anticipated by a prior art reference, Morris (WO 2013/134388). Appx1049. In response, Taction argued that Morris discloses "highly resonant" LRAs, while "[Taction's] invention, in contrast, is directed to transducers with highly damped output." Appx1049-1050. For further support, Taction cited a passage in the specification describing the claimed damped motion as "substantially uniform over [a] range of 40-200 Hz." Appx1050. Taction also noted that the "invention specifically teaches [a]way from" LRAs, relying on the specification's disparagement of prior art "un-damped [LRAs]" as "problematic." Appx1050.

The "relatively uniform, non-peaked … response" of the asserted patents is "achieve[d]" by mechanically "damp[ing] [the] resonance" of the claimed vibration module. Appx130 (9:36-41). Each claim of the asserted patents, either independently or through dependency, recites ferrofluid damping. *See* Appx132 (claim 1); Appx133 (claim 20); Appx157-158 (claims 1, 9); Appx158 (claims 16, 17). No claim in the patents recites non-mechanical damping, and the specification does not describe or refer to any form of damping other than mechanical

damping. *See, e.g.*, Appx127 (4:6-9) (describing only the mechanical damping used in the claimed invention).

The District Court Construes The Claims To Require Highly Damped Output.

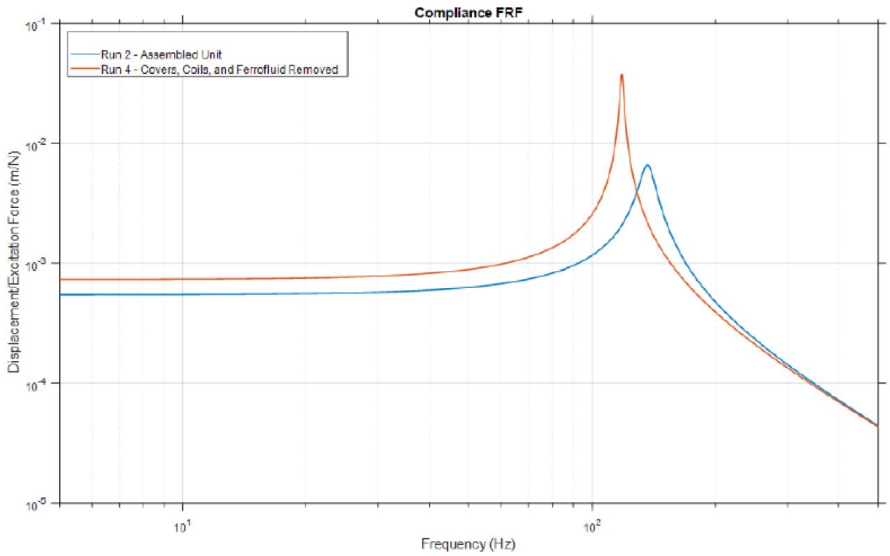
On April 26, 2021, Taction sued Apple, alleging infringement of the asserted patents and accusing products that implement haptics technology, including iPhones and Apple Watches. Appx364 ¶¶ 22-24. After the magistrate judge granted in part Apple's motion to compel discovery concerning litigation funders, *see* Appx5662-5663, and after Taction opposed Apple's follow-up subpoenas to Kenosha Investments LP and Gronostaj Investments LLC, *see* Appx5663-5664, the magistrate judge requested clarification from Kenosha and Gronostaj on their relationship to Burford Capital. Christopher Freeman, a Director at Burford, declared that Burford invested in this litigation through special purpose investment vehicles. Appx5673-5674 (redacted).[4]

[4] *See, e.g.*, Sarah Downey, *Patent Lawsuit vs Apple Puts More Attention on Potentially Murky Business of Third-Party Lawsuit Investing*, Northern California Record (Aug. 8, 2023), http://tinyurl.com/42ud28d7; Ryan Davis, *Judge Floats Sanctions for Funders in Apple Patent Dispute*, Law360 Pulse (July 19, 2023), http://tinyurl.com/25y8pxmz.

Apple filed inter partes review ("IPR") petitions, challenging all asserted claims of the asserted patents. Apple's petitions addressed the frequency range. *See, e.g.*, Appx498-500. The Patent Trial and Appeal Board denied institution for reasons independent from this appeal. *Apple Inc. v. Taction Tech., Inc.*, Nos. IPR2022-00057 and -00059 ('885 patent); *Apple Inc. v. Taction Tech., Inc.*, Nos. IPR2022-00058 and -00060 ('117 patent).

Taction filed initial infringement contentions, asserting that ferrofluid within the Taptic Engine satisfied the ferrofluid damping limitations. Appx4483-4487. Taction attempted to demonstrate the damping impact of ferrofluid in the Taptic Engine with frequency response graphs generated by removing the Taptic Engine from an accused iPhone or Watch and mounting it to an "electrodynamic shaker." Appx4467. This setup was used to deliver "a specific frequency" signal to the Taptic Engine, with and without the Taptic Engine's ferrofluid included, and measure its response. Appx4467-4468. Taction then measured and graphed frequency response functions ("FRFs") to determine the "frequency, damping, and mode

shape" of the Taptic Engine's response to the constant input signal, both with ferrofluid (blue) and without (red). Appx4467.



E.g., Appx4485.

The district court held a *Markman* hearing and subsequently issued a claim construction order. Appx5. As relevant to this appeal, the parties disputed whether the claim limitation "wherein the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz," and the similar variations, *see* Appx47-48, requires that the ferrofluid produces a "substantially uniform, non-peaked response over the frequency range of 40-200 Hz." Appx10. Taction argued that the limitation needed no construction. *See, e.g.*, Appx2271. Apple proposed that the term should be construed to require a "substantially uniform, non-peaked response"—specifically connecting a

non-peaked, "'uniform' response" to the "highly damped output" referred to by Taction during prosecution. Appx955; Appx958-959.

Apple also explained that "Taction made this same disavowal [of] 'peaked' responses" in the prosecution history of the '913 patent, where Taction distinguished prior art "highly resonant" actuators from its claimed invention, which Taction characterized as "directed to transducers with highly damped output." Appx958-959 (quoting Appx1049-1050 (quotation marks omitted)). Apple also noted that Taction's citations to specification passages during prosecution further supported this disavowal. Appx959. In recounting the prosecution history, Apple accepted Taction's description of the "highly damped output" as synonymous with a non-peaked and uniform response. Appx958-959.

In its claim construction order, the district court found that the specification's disparagement of "un-damped" LRAs as "problematic," and its description of the "drawback[s] of LRAs," demonstrated that "un-damped" LRAs are outside the scope of the asserted claims. Appx11-12. The court found that the prosecution history supported an additional disavowal, based on Taction contrasting Morris's "highly

resonant" LRA with the claimed invention, which Taction explicitly defined as "transducers with highly damped output." Appx12-13 (quotation marks omitted). In sum, the court found that the specification passages and prosecution history amounted to "clear and unequivocal disavowal that: (1) the claimed invention is directed to 'transducers with highly damped output;' and (2) the claimed invention does not utilize or encompass 'un-damped [LRAs].'" Appx13. The court otherwise construed the limitation to have its plain and ordinary meaning, "entered with acknowledgment" of the two disclaimers of claim scope. Appx15-17.

On October 31, 2022, following claim construction, Taction served its final infringement contentions. Appx3741-3763; *see* S.D. Cal. Pat. L.R. 3.1 (setting out requirements for disclosure of infringement contentions). Taction relied on the same frequency response graphs as it had in its initial contentions to show that the ferrofluid "reduces … a mechanical resonance." *Compare* Appx4483-4487 (initial contentions), *with* Appx3778-3782 (final contentions). Taction's entire disclosure concerning "highly damped output" argues only

> that the Taptic Engines in the accused products are "transducers with highly damped output." Apple itself, for

> example, has stated "[t]he frequency response of the module is controlled, including the frequency response at the resonant frequency, through the use of a closed loop software controller …." So, too, the frequency response graphs included in Taction's infringement claim charts, show that the Taptic Engines are transducers that have a "highly damped output." … Additionally, Taction contends that … the requirement for a "highly damped output" may be satisfied by any mechanism.

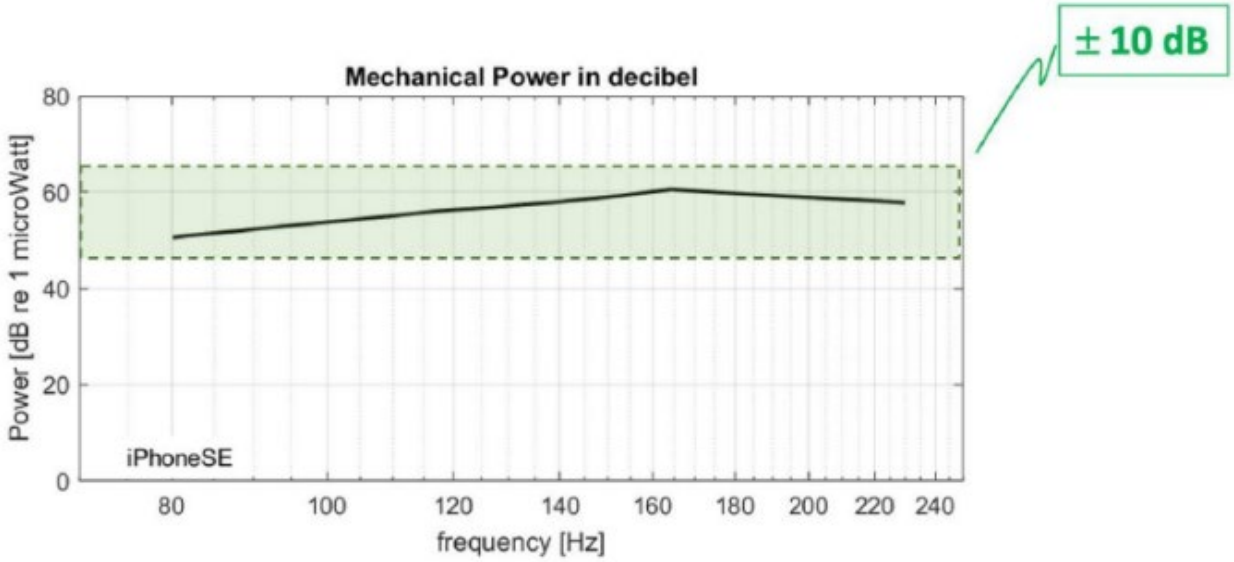
Appx3751 (internal citations omitted).

Taction's Expert Opines On A New Infringement Theory.

On April 3, 2023, Taction served Apple with the final report of its technical expert, Dr. Oliver. Dr. Oliver's opinion introduced both a new definition for "highly damped output" and a new infringement theory, neither one raised in Taction's infringement contentions. Dr. Oliver opined that the accused products meet the "highly damped output" limitation because they all produce an output "that is generally uniform or flat," Appx3547 ¶ 608, using "the closed loop control system combined with damping provided by the ferrofluid," Appx3558 ¶ 618. This was the first time that Taction—purely through Dr. Oliver's report—ever asserted that "highly damped output" requires a "generally uniform or flat" output. *See generally* Appx3741-3763 (Taction's final infringement contentions, which do not include the phrase "generally uniform or

flat"); *see also* Appx4840 (Taction describing its own infringement contentions as "not reciting a proposed definition" for "transducers with highly damped output").

Dr. Oliver relied on new response graphs produced using a new test to support his infringement analysis. In particular, Dr. Oliver evaluated the frequency response of iPhones based on "power measurements" related to the "ratio between … amounts of acoustic or electric power." Appx3511 ¶ 572.



Appx3528 ¶ 584. Dr. Oliver's report presented graphs showing mechanical power (measured in decibels per microWatt) as a function of frequency to allege that the power output of the Accused Products is

"generally uniform or flat … over the frequency range tested." Appx3511-3512 ¶ 573; Appx3526 ¶ 584.

There are also two significant differences between the methodologies used to create Taction's original graphs and Dr. Oliver's new graphs: (1) Dr. Oliver applied variable input to the tested Taptic Engine, whereas Taction (per the patents) had applied a constant input; and (2) Dr. Oliver relied on the CLC in the tested Taptic Engine, whereas Taction had removed the vibration module from the device and thus disconnected the CLC prior to testing. Appx3497-3508 (Dr. Oliver describing his methodology); Appx334-337 (Apple comparing Dr. Oliver's new testing with Taction's original testing).

Dr. Oliver testified that Taction's original graphs disclosed in its final infringement contentions, "do not represent highly damped output." Appx4396:25-4397:8.

Apple Moves To Strike Portions Of Taction's Expert Report And Moves For Summary Judgment.

Apple moved to strike the portions of Dr. Oliver's report addressing this new theory of infringement, explaining that it violated a local patent rule, and moved for summary judgment on that basis. Appx4023; *see also* Appx4137-4168 ¶¶ 545-584; Appx4183-4199 ¶¶ 602-

619; Appx4205-4206 ¶ 626; Appx4256-4257 ¶¶ 1244-1245 (Dr. Oliver's infringement opinions based on a new infringement theory); Appx4035-4039 (Apple's argument in support of striking paragraphs 192, 545-584, 603-632, 638-639, 814, 831, 1161, 1244-1245 and Appendices D-F, H-S, and W of Dr. Olivier's report, which address a new infringement theory). Apple also moved for summary judgment, arguing that it did not infringe the asserted patents under the district court's claim construction because the accused products "are not 'highly damped' by ferrofluid" or mechanical damping and "highly damped output" requires a "Q-factor of less than 1.5." Appx63.

The District Court Strikes Portions Of Taction's Expert Report For Raising A New Infringement Theory.

The district court found that Dr. Oliver's report "improperly contains a new theory of infringement that is materially different from what was presented in Taction's final infringement contentions," and should be struck as violating Patent Local Rule 3.1(c). Appx55. The district court explained that Taction's final infringement contentions never disclosed the infringement theory that the highly damped output means generally uniform or flat; nor was there any allegation that the highly damped output is caused by the combination of ferrofluid

damping and CLC. Appx55 (quoting Taction's opposition and its acknowledgment that Taction's infringement contentions "[did] not recit[e] a proposed definition" of highly damped output). It was insufficient, according to the district court, that the final infringement contentions made passing reference to both closed loop control and ferrofluid damping—Taction neither asserted that the combination of CLC and ferrofluid damping satisfied the "highly damped output" limitation, nor explained how the combination did so. Appx55-56. And "implicit disclosures are contrary to the purposes of the local patent rules." Appx56 (alteration omitted). Accordingly, the district court struck Dr. Oliver's opinions regarding the CLC and ferrofluid combination satisfying the "highly damped output" limitation. Appx56-57.

The District Court Grants Apple's Motion For Summary Judgment.

After striking Dr. Oliver's new infringement theory, the district court granted Apple's motion for summary judgment. Appx 62-63. Without Dr. Oliver's theory, the district court recognized, Taction had no evidence to support its claim that the accused devices produced "highly damped output." Appx63.

In the alternative, the district court also granted Apple's motion for summary judgment based on two additional claim constructions prompted by the parties' arguments. Appx63.

The district court held that both Dr. Oliver's report and Apple's summary judgment argument had raised additional claim construction positions, indicating that that the scope of Taction's disclaimer remained in dispute. Appx62-64. In the interest of fairness and in light of its evolving understanding of the technology, the court considered both parties' arguments, then revisited and clarified its claim construction. Appx63-64.

First, the district court adopted a modified version of Taction's proposed construction, holding that "highly damped output" requires "output [that] is substantially uniform or flat." Appx68-69.

Next, the district court addressed Apple's argument that the "highly damped output" must be produced by either ferrofluid, or, more generally, by mechanical damping. Appx70. The district court agreed with the latter, recognizing that the "only disclosures of damping in the specification are all forms of mechanical damping" and that Taction's expert conceded that the "specification only provide[s] examples of

damping that are 'mechanical in nature'" and does not reference closed loop control. Appx71 (limiting claims to mechanical damping because this supporting disclosure "indicates [what] the inventor actually invented").

The district court also agreed with Apple that "highly damped output" requires a Q-factor of less than 1.5 because the specification disparages prior art transducers for having the "drawback" of being "underdamped, with a claimed Q-factor of 1.5 to 3," amounting to clear and unequivocal disavowal of transducers with Q-factors in that range. Appx73-74 (quoting '885 patent, 2:63-67); *see also* Appx307 (ll.12-13) (Taction conceding that "[t]here is clearly disparagement of the prior art" in the specification). The court also recognized that the specification elsewhere "explains that a 'high Q-factor' will render transducers 'useless … in the 15-120 Hz range,'" stating that the drawback of having a Q-factor of 1.5 to 3 was "a significant drawback," indicating disparagement, not mere description, of the prior art. Appx74-75 (quoting '885 patent, 2:31-34). The court determined that the specification disavowed transducers with a Q-factor of 1.5 or more and adopted Apple's proposed construction. Appx75-77.

In sum, the district court revised its prior claim construction such that the claims require highly damped output ("output [that] is substantially uniform or flat over the normal operating frequency range of the device") "achieved by mechanical damping" and "a Q-factor of less than 1.5." Appx78. In light of this construction, the court found that even without striking Dr. Oliver's opinions, "it is clear that Apple's accused products do not infringe the asserted patents" for two reasons. Appx78. First, Taction "failed to provide … any evidence … that the mechanical damping in the accused products achieves a highly damped output," because Dr. Oliver's report indicates only that the electrical damping of the closed loop control *in combination* with the ferrofluid damping produce a generally uniform frequency response. Appx80. Second, none of the accused products have a Q-factor less than 1.5, Appx78-79. The court therefore granted Apple's motion for summary judgment on non-infringement. Appx81.

SUMMARY OF ARGUMENT

I. The district court correctly struck Taction's new infringement theory. Taction's infringement contentions disclosed a theory that Apple's Taptic Engine produced "highly damped output" with ferrofluid,

as shown in Taction's frequency response graphs. Dr. Oliver advanced a different theory, showing with new graphs how Apple's closed loop control generates a flat curve and stating that the previous graphs *did not* show "highly damped output." In seeking to rely on an undisclosed infringement theory, Taction violated Patent Local Rule 3.1(c), which requires plaintiffs to disclose—and then stick to—not only their theory of which components of a device allegedly infringe, but also their theory of how the accused products satisfy each claim limitation. Accordingly, the district court was well within its discretion to exclude Taction's new infringement theory and grant summary judgment on that basis.

II.A. The district court correctly held that Taction disclaimed transducers lacking "highly damped output." Taction explicitly described its invention, as a whole, as directed to transducers with highly damped output in order to overcome a rejection based on prior art lacking that feature. The specification and figures—including sections that Taction affirmatively cited to the Examiner—support this disclaimer by further disparaging insufficiently damped prior art transducers. Taken together, the prosecution history and specification provide a clear and unmistakable disclaimer of claim scope.

II.B. The district court also correctly clarified its "highly damped output" construction to provide that the output must be produced by mechanical damping, in accordance with the patents' disclosure. Taction's patents exclusively describe mechanical damping, specifically criticize the prior art for lacking mechanical damping, and include claims that uniformly require ferrofluid damping. Given the scope of that disclosure, the district court correctly recognized that construing the claims to encompass "highly damped output" by way of non-mechanical damping would render the claims invalid under 35 U.S.C. § 112 for lack of written description. It therefore appropriately construed the claims in accordance with the patents' scope.

II.C. The district court also correctly held that the specification quantifies "highly damped output." By specifically disparaging transducers with a Q-factor greater than 1.5 as providing too little of the damping needed for audio equipment, the specification makes clear that such transducers are not "highly damped" as required by the patents' disclosure.

STANDARD OF REVIEW

The district court is granted "broad deference" in the application of its patent local rules, and this Court reviews its application of such rules only for abuse of discretion. *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1292 (Fed. Cir. 2005); *Genentech, Inc. v. Amgen, Inc.*, 289 F.3d 761, 774 (Fed. Cir. 2002).

The Federal Circuit reviews "claim construction based on intrinsic evidence de novo and review[s] any findings of fact regarding extrinsic evidence for clear error." *SpeedTrack, Inc. v. Amazon.com*, 998 F.3d 1373, 1378 (Fed. Cir. 2021).

ARGUMENT

I. The District Court Acted Within Its Discretion In Striking Taction's New Infringement Theory.

Southern District of California Patent Local Rule 3.1(c) requires plaintiffs' contentions to "identify[] specifically where each element of each asserted claim is found" within each accused product, and courts are empowered to strike evidence not properly disclosed under the local rules. But the new "highly damped output" infringement theory advanced by Dr. Oliver was not disclosed in Taction's final infringement

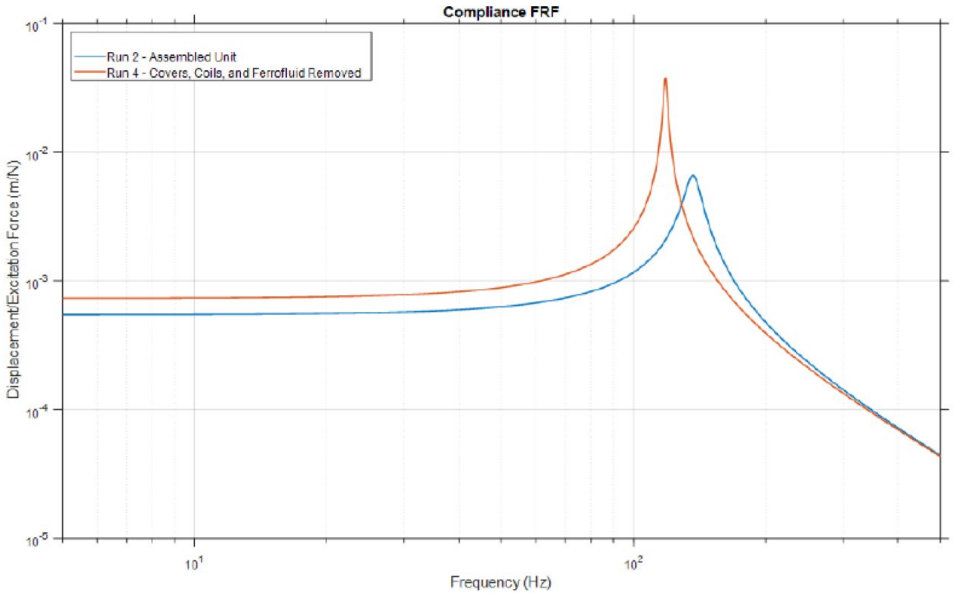
contentions. *See* §IA. As a result, the district court was well within its discretion to exclude Dr. Oliver's new theory. *See* §IB.[5]

A. Taction's expert introduced a new infringement theory not included in Taction's infringement contentions.

As the district court recognized, Taction's infringement contentions never disclosed the "highly damped output" infringement theory advanced by Dr. Oliver. Appx57.

Taction's infringement contentions state that "the frequency response graphs included in Taction's infringement claim charts"—alone, not combined with anything else—"show that the Taptic Engines are transducers that have a 'highly damped output.'" Appx3751; *see also supra* 20-21. The charts identified by Taction reflected a sharply peaked response:

[5] Taction also spends several pages arguing that the district court abused its discretion by striking paragraphs 605-607 of Dr. Oliver's report for additional reasons. *See* OB71-73 (wrongly suggesting that the district court struck the entire opinion). Though this Court need not reach the issue to affirm—the three paragraphs in question also fail for the same reasons as Dr. Oliver's other opinions discussed herein—the district court's additional rationales were sound: first, the paragraphs constituted improper attempts to argue claim construction to the jury, Appx60-61; and second, Taction waived the relevant claim construction by arguing that no construction was necessary at the *Markman* hearing, Appx61-62; *see* Appx3543-3546 ¶¶ 605-607.



E.g., Appx4485; *see supra* 17-18, 20. The charts also showed the mechanical damping effect of the ferrofluid alone, not combined with anything else. Appx4467-4468; Appx349 (ll. 1-4).

But Dr. Oliver took a different approach. His report no longer relied on ferrofluid in isolation or on the charts in Taction's contentions. Instead, Dr. Oliver generated new charts reflecting the operation of Apple's CLC. Appx3513-3528 ¶¶ 575, 577, 579, 580, 582, 584. To create these new charts, Dr. Oliver wrote custom-built software that directed Apple's CLC to apply a variable input to the Taptic Engine *inside* the iPhone. Appx3497-3508; Appx3549; Appx3547; Appx334-337. In addition, Dr. Oliver also measured a different output (the mechanical power produced on command by the Taptic Engine) than Taction's

infringement contentions and its graphs measured (the displacement response of the transducer alone to a fixed input). In essence, Dr. Oliver created software that told the Taptic Engine to create an output showing a flat line—and it did.

Dr. Oliver said the new charts show infringement because they reflect "highly damped output" due to their substantially flat response—a feature that was not present in the charts Taction's infringement contentions identified as showing "highly damped output." Appx3547-3559 ¶¶ 608-618; *compare, e.g.*, Appx4485. When asked about the old charts, Dr. Oliver contradicted the infringement contentions entirely, explaining that the old charts "*do not* represent highly damped output" because they show a peaked rather than a flat response. Appx4397 (ll. 7-13) (emphasis added); *see* Appx4394-4396.

Taction insists that the infringement contentions nonetheless disclosed Dr. Oliver's infringement theory by briefly mentioning the existence of closed loop control. OB69; *see* Appx3751. According to Taction, mentioning "*both* the ferrofluid *and* the closed loop controller" in the same paragraph—even without any suggestion of combining the two—was "more than sufficient to apprise Apple" of Taction's theory

that "the two features work[ing] in tandem" satisfied the claims. OB69. But all the infringement contentions do is quote, without explanation, a portion of Apple's interrogatory response stating that "[t]he frequency response of the module is controlled … through the use of a closed loop software controller." Appx3751. The contentions offer no further discussion of closed loop control, and certainly do not disclose (or even suggest) how Taction believed that the combination of closed loop control and ferrofluid provided "highly damped output." On the contrary, the next sentence states, without qualification, that "highly damped output" is "show[n]" by the sharply peaked charts reflecting ferrofluid alone. Appx3751.

In sum, Dr. Oliver's infringement theory relied on a different set of test conditions, measuring a different output, resulting in entirely different frequency response graphs than anything Taction timely disclosed.

B. The district court acted within its discretion in holding that Taction's new infringement theory violated Patent Local Rule 3.1(c).

As explained above, Taction's infringement contentions never disclosed Dr. Oliver's infringement theory. But Patent Local Rule 3.1(c)

requires plaintiffs' contentions to "articulate the precise way in which [they] believe[] the products to be infringing" and "explain 'how' the accused systems practice the claimed elements." *Ameranth, Inc. v. Pizza Hut, Inc.*, No. 12CV1627, 2013 WL 3894880, at *8-9 (S.D. Cal. July 26, 2013).[6] "Once served, the infringement contentions constitute the universe of infringement theories." *CliniComp Int'l, Inc. v. Cerner Corp.*, No. 17CV02479, 2022 WL 16985003, at *13 (S.D. Cal. Nov. 15, 2022) (quotation marks omitted). In other words, Patent Local Rule 3.1(c) requires plaintiffs "to crystallize their theories of the case early in the litigation and to adhere to those theories once they have been disclosed." *Id.* at *12 (quotation marks omitted); O2 *Micro*, 467 F.3d at 1364 (local rules help "prevent the 'shifting sands' approach to claim construction").

Because Dr. Oliver's "highly damped output" infringement theory was not disclosed in the infringement contentions, the district court correctly struck it under Local Rule 3.1(c). The district court explained that Taction's final infringement contentions disclosed no theory that

[6] Pat. L.R. 3.1(c) requires service of "[a] chart identifying specifically where each element of each asserted claim is found within each Accused Instrumentality."

"highly damped output" means output that is "generally uniform or flat"; nor that "highly damped output" is produced by a combination of ferrofluid damping and closed loop control. Appx55.

Taction asserts (at OB68-69) that the local rules require no affirmative explanation of its interpretation of what it belatedly characterizes as "ambiguous claim language."[7] But the district court imposed no abstract obligation to explain what "highly damped output" requires. Taction was obligated only to explain how it believed the accused product satisfied each limitation of the asserted patents, including the "highly damped output" element.

Taction insists that requiring it to explain *how* the identified components satisfy the claim limitation was an abuse of discretion. OB70. In Taction's view, the rules "on their face require only the identification of 'where' each limitation is 'found' within the accused products," and that plaintiffs need do more than identify relevant components. OB70. Similarly, Taction argues that explaining its theory was unnecessary because the claim "says nothing about what

[7] Taction never sought clarification of the phrase "highly damped output" before serving its final infringement contentions or its expert reports.

causal mechanism creates the output," but "merely requires that the output *be* highly damped." OB69-70. But as the district court explained, the Local Patent Rules *always* require plaintiffs to explain their reasoning: they "must identify with specificity where in the accused system the alleged infringement occurs and *how* the claim elements are met." Appx57 (emphasis added) (quoting *Ameranth*, 2013 WL 3894880, at *9). Taction's problem was that it "failed to provide the requisite 'how.'" Appx57.

Other courts in the Southern District of California have consistently interpreted the rule just as the district court did here—requiring the plaintiff to explain *how* the identified components infringe. Appx57 n.4; *see Footbalance Sys. Inc. v. Zero Gravity Inside, Inc.*, No. 15-CV-1058, 2017 WL 3877720, at *3 (S.D. Cal. Sept. 5, 2017) ("[T]he specificity required in [a plaintiff's] infringement contentions ... 'will provide information concerning *how* each limitation of the asserted claims [is] met'" (emphasis added)); *AntiCancer, Inc. v. Cambridge Rsch. & Instrumentation, Inc.*, No. 07CV97, 2009 WL 9115821, at *4 (S.D. Cal. Feb. 13, 2009) (finding contentions "deficient in explaining *how* … [photographs] establish infringement" (emphasis added)).

Indeed, any other reading of the rule would undermine the purpose of infringement contentions, which are meant to crystalize the issues for discovery and help "prevent the 'shifting sands' approach to claim construction." *O2 Micro*, 467 F.3d at 1364; *see also* Appx59 (noting that Taction's shifting theory "prevented [Apple] from conducting responsive testing or obtaining responsive … expert testimony," thereby frustrating the fair litigation of the case). Nor was Taction blindsided by the district court's interpretation of the rule. As the district court recognized, Taction clearly understood that Local Patent Rule 3.1 requires more than bare identification of components because Taction's contentions *did* offer an explanation of how it believed infringement occurred (i.e., it proffered frequency response graphs showing the effect of mechanical damping via ferrofluid)—just not the same explanation it relied on later. Appx57 n.4.

Separately, Taction argues that its general reference to closed loop control followed later by charts measuring only the damping effect of ferrofluid "was more than sufficient to apprise Apple that the two features worked in tandem," and thus satisfied the local rule. *See* OB69. But, as the district court recognized, "implicit disclosures are

contrary to the purposes of the local patent rules," and "mere identification of these two components is insufficient to adequately disclose [the] theory of infringement" expressed in Dr. Oliver's report. Appx55-56 (alteration omitted).

Taction also asserts that the district court retroactively applied the mechanical damping requirement issued later in the summary judgment order to infringement contentions prepared based solely on the "highly damped output" limitation. OB70. But nothing indicates that the district court relied on any limitation other than "highly damped output" when it determined that Taction failed to disclose Dr. Oliver's infringement theory in its contentions. Again, Taction's obligation to explain how it believed the "highly damped output" limitation was met existed whether or not the claims also require "highly damped output" to be achieved by mechanical damping. Appx57. Indeed, the district court reached the later-issued mechanical damping issue only as an alternative basis for granting summary judgment. Appx63.

Ultimately, Taction's appeal boils down to its insistence that the district court misunderstood its own local rules. But "this court defers

to the district court when interpreting and enforcing local rules." *Genentech*, 289 F.3d at 774. And it recognizes that such deference is required "so as not to frustrate local attempts to manage patent cases according to prescribed guidelines." *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1321 (Fed. Cir. 2016) (quotation marks omitted). Here, the district court reasonably concluded that Taction failed to follow local rules requiring it to disclose *how* it believes Apple's devices infringe each element of the asserted claim.

Accordingly, the district court had the discretion to exclude the evidence. Taction does not dispute that where a plaintiff departs from the infringement theory it offered in the final infringement contentions, exclusion of evidence is the appropriate remedy. *See* OB66-72; *O2 Micro*, 467 F.3d at 1369-70 (affirming decision to exclude expert reports under local rules, which led to summary judgment of non-infringement); *Phigenix, Inc. v. Genentech, Inc.*, 783 F. App'x 1014, 1016 (Fed. Cir. 2019) (same). Indeed, exclusion of evidence is proper regardless of whether the plaintiff's failure to disclose its infringement theory as required by the local rules caused any prejudice to the defendant (though the district court *did* find prejudice here, and Taction does not

dispute this on appeal). *Id.*; *see also* Appx59. Excluding infringement theories that were not disclosed under the local rules—as the district court did here—is certainly not an abuse of the district court's discretion. *Id.*

* * *

"Without Dr. Oliver's [infringement] opinions regarding the 'highly damped output' limitation, Taction's infringement case fails." Appx63; Appx62 (citing *O2 Micro*, 467 F.3d at 1369) (affirming summary judgment where untimely infringement theories were struck from expert report); *Phigenix*, 783 F. App'x at 1020 (similar). Because Taction's infringement contentions did not include Dr. Oliver's infringement theory, the district court properly granted Apple summary judgment.

II. The District Court Correctly Construed The Claims And Granted Summary Judgment On Alternative Grounds.

When the district court issued its "highly damped output" construction, Taction had disclosed no infringement theory that showed "highly damped output" or pointed to any damping beyond the mechanical damping mechanisms (like ferrofluid) described in the specification and recited in the claims. As explained above (at § I.A),

Taction's final infringement contentions—issued in the wake of that initial construction—also relied on ferrofluid to meet the "highly damped output" limitation. But as the case progressed to the expert phase, Taction found itself unable to prove infringement under the theory it had disclosed, so its expert pivoted to a new infringement theory targeting Apple's CLC instead.

As discussed above (at § I.B), the district court correctly excluded Taction's new theory under the local rules. And because the district court's initial construction requiring "highly damped output" was correct, *see* § II.A, this Court can affirm summary judgment on that basis alone.

This Court can also affirm for two additional reasons. Taction's pivot warranted two clarifying constructions of "highly damped output":[8] one requiring that that the "highly damped output" be

[8] Taction suggests that issuing these clarifying constructions shows that the initial construction was wrong. OB21. But, as explained above (at § I), it was Taction's shifting infringement theory, and Taction's effort to detach the "highly damped output" limitation from the context in which it was issued, that made further construction necessary. *See Pfizer, Inc. v. Teva Pharms., USA Inc.*, 429 F.3d 1364, 1377 (Fed. Cir. 2005) (explaining that "[d]istrict courts may engage in [a] rolling claim construction, in which the court revisits and alters its interpretation of

achieved by the mechanical damping disclosed in the patents, *see* § II.B; the second requiring "highly damped output" corresponds to a Q-Factor of less than 1.5, *see* § II.C. Affirming either of these clarifying constructions also requires affirming summary judgment, regardless of whether Dr. Oliver's new infringement theory is excluded.

A. The district court correctly concluded that Taction disclaimed transducers lacking "highly damped output."

Taction unequivocally limited the scope of its invention to "transducers with highly damped output." It did so in multiple ways. The specification describing its invention discloses that a principal problem with prior art haptic transducers—a problem its invention allegedly solves—is their lack of adequate damping. *See, e.g.*, Appx126 (2:11-13). Through both words and figures, the specification repeatedly touts the uniform frequency response of the disclosed transducers. *See, e.g.*, Appx116 (Fig. 5C); Appx127 (3:53-58); Appx130 (9:14-44). The specification also distinguishes its invention from both linear resonant

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the claim terms as its understanding of the technology evolves"); *Utah Med. Prods., Inc. v. Graphic Controls Corp.*, 350 F.3d 1376, 1381-83 (Fed. Cir. 2003) (holding that the district court did not err in amending its claim construction during oral arguments for pretrial motions nearly two years after the original construction).

actuators, whose lack of damping makes them "useless," and transducers with inadequate damping as measured by a Q-factor from "1.5 to 3.0." Appx126 (2:25-33, 65-67). Each of these statements indicates that the invention does not extend to transducers without highly damped output. Then, during prosecution of the parent to both asserted patents, Taction removed any doubt by telling the Examiner that "Applicant's invention … is directed to transducers with highly damped output." Appx1050.

The district court's claim construction order does no more than hold Taction to its own words. This Court should do likewise.

1. The specification and prosecution history make clear that the invention is limited to "transducers with highly damped output."

Taction made clear that the claimed invention was directed to "transducers with highly damped output" in an unequivocal way: the applicant told the Examiner so, using those exact words, and then supported that statement with direct references to the patent specification that made it clear. Appx 1049-1050.

Specifically, during prosecution of the '394 application—the parent application to both patents asserted below, based upon a shared

specification—the Examiner issued a rejection under § 102 in light of the Morris reference. Appx1049. Morris disclosed linear resonant actuators, which Taction's specification noted lacked adequate damping. To overcome that reference, Taction argued:

> Applicant notes that Morris discloses a multi-axis array of linear resonant actuators, each of which, by definition is highly resonant. See, e.g., Fig. 92J; Morris claim 1 ("... a plurality of linear resonant actuators...")
>
> *Applicant's invention, in contrast, is directed to transducers with highly damped output*.

Appx1049-1050 (emphasis added). Taction then cited two sections of the specification to support its summary of "Applicant's invention." Appx1050 (citing Column 3, lines 56-61 and Col. 2, lines 14-16). The Examiner issued no further rejections and allowed the '394 application to issue.

Each aspect of Taction's response to the Examiner supports a finding of disclaimer here.

To begin, this Court has often found disclaimer "based on clear and unmistakable statements by the patentee that limit the claims, such as 'the present invention includes ...' or 'the present invention is ...' or 'all embodiments of the present invention are ... .'" *Luminara*

Worldwide, LLC v. Liown Elecs. Co., 814 F.3d 1343, 1353 (Fed. Cir. 2016) (collecting cases and noting that disclaimer can result where "the specification or prosecution history make clear that the invention does not include a particular feature" (alterations in original omitted)); *see also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("[T]he characterization of [a particular feature] as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure."). Indeed, Taction concedes as much in its opening brief. *See* OB39 ("[T]his Court has sometimes construed statements that the 'invention … is directed to' particular subject matter to qualify as disclaimers."). Taction's unequivocal statement to the Examiner about what "Applicant's invention is directed to" provides just such language. It constitutes a clear and unmistakable disclaimer that excludes transducers lacking the "heavily damped output" that Taction itself described.

Taction's two subsequent citations to the specification reinforce this conclusion.

Taction first cites a passage in column 3 of the specification:

> Motion of the movable member can be *damped* so that the steady-state sinusoidal voltages applied to the module at different frequencies produce an acceleration *response* of the movable member that is *substantially uniform* over the range of 40-200 Hz.

Appx1050 (emphasis added). The passage that Taction cited to the Examiner is specific and detailed, requiring that the transducer's motion be "damped" so that its "acceleration response … is substantially uniform over the range of 40-200 Hz." Appx1050. The same or similar formulations are repeated several times elsewhere in the specification. *See, e.g.*, Appx109 (Abstract); Appx127 (3:57-58); Appx128 (5:49-51) ("measured acceleration [response] … is approximately uniform"); Appx130 (9:39-40) ("relatively uniform, non-peaked, [frequency] response"); *see also* Appx4849 (Taction conceding that "[t]he specification repeats [this] material several times").

The "substantially uniform" frequency response disclosed here is equivalent to a high degree of damping; indeed, Taction itself equated the two. In its briefing below, Taction argued that the phrase "highly damped output" refers to output that is "generally uniform or flat," relying on this language from the specification. Appx4847-4851 (capitalization omitted).

On appeal, Taction offers two objections specific to this initial citation in its response to the Examiner. First, Taction argues that the citation references a paragraph that merely describes "some embodiments," and thus, in its view, cannot evince a disclaimer. OB39-40. But the cited passage is in the first paragraph of the "Summary of the Disclosure," *see* Appx127 (3:51-62), and is the *only* paragraph in the Summary that describes the invention as a whole, *see* Appx127-128 (3:63-5:11) (describing features of various components of the claimed vibration module). In any case, that boilerplate language in the specification does not detract from the clarity of the statement Taction made to the Examiner, which on its face characterized the invention as a whole. Appx1050. Second, Taction skips past the substance of the passage it cited to the Examiner and seeks to divert this Court's attention to the claim amendment in its response to the Examiner where it indicated only that its invention requires "some damping—not any particular degree." OB40-42. But Taction did not argue the language of its amended claim to the Examiner; its argument relied entirely on its characterization of its invention as contrasted against the prior art disclosed in the Morris reference.

Furthermore, even taken together, these arguments amount to a contention that Taction did not need to disclaim so much to traverse the Examiner's rejection. In Taction's view, it could have made an argument directed to particular limitations, rather than the invention as a whole, and still won issuance of Claim 15. OB41-42. But this Court has repeatedly rejected that argument. For example, in *Technology Properties Ltd. LLC v. Huawei Technologies Co.*, this Court explained that "[t]he question is what a person of ordinary skill would understand the patentee to have disclaimed during prosecution, not what a person of ordinary skill would think the patentee needed to disclaim during prosecution." 849 F.3d 1349, 1359 (Fed. Cir. 2017). Thus, "[i]t is immaterial whether … [a patentee] needed to make such a broad disclaimer in order to traverse the prior art because 'the scope of surrender is not limited to what is absolutely necessary to avoid a prior art reference; patentees may surrender more than necessary.' … 'When this happens, we hold patentees to the actual arguments made, not the arguments that could have been made.'" *TMC Fuel Injection Sys., LLC v. Ford Motor Co.*, 682 F. App'x 895, 899 (Fed. Cir. 2017) (quoting *Tech. Props.*, 849 F.3d at 1359). Here, a skilled artisan would understand

Taction's explicit words that limited its invention to transducers with "highly damped output." Taction's own expert testified that the patented invention was related to transducers with highly damped output. Appx4385-4386; *see also* Appx3417.

Second, Taction's response to the Examiner separately cited to a second passage in column 2 of the specification: "Another approach in the prior art, also problematic, is the use of … un-damped linear resonant actuators ("LRAs")." Appx1050; *see* Appx126 (2:14-16) (same passage). The surrounding context makes the import of this citation clear, and supportive of its disclaimer. Shortly after the cited passage, the specification details the "problematic" aspects of LRAs: "[t]he main drawback of LRAs is the dependence on … 'resonance,' that the name suggests." Appx126 (2:25-26). It then specifically links LRAs' lack of damping to their "high Q-factor" that "renders this sort of device useless" for a principal objective of the claimed invention—"high fidelity reproduction of low frequency tactile effects." Appx126 (2:31-33).

This Court has repeatedly found disclaimer where a patentee has so specifically disparaged a feature of the prior art in its specification or in its arguments to the Patent and Trademark Office ("PTO"). For

example, in *MBO Laboratories*, this Court held that "[p]rosecution arguments like this one which draw distinctions between the patented invention and the prior art are useful for determining whether the patentee intended to surrender territory, since they indicate in the inventor's own words what the invention is not." *MBO Lab'ys, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1330 (Fed. Cir. 2007). Similarly, in *Poly-America, L.P. v. API Industries, Inc.*, this Court explained that "an inventor may disavow claims lacking a particular feature when the specification distinguishes or disparages prior art based on the absence of that feature." 839 F.3d 1131, 1136 (Fed. Cir. 2016). By disclaiming LRAs, Taction did precisely that here, and this Court should hold it to the consequences of its arguments to the PTO.

Furthermore, despite Taction's protests, its statement and citations in the prosecution history do not stand alone. Although the specification does not use precisely the same words—"highly damped"—that Taction later used to summarize its invention in its response to the Examiner, it nevertheless makes abundantly clear that a crucial feature of the invention it discloses is a transducer with a high degree of

damping. It does so in multiple places and in multiple ways, even quantifying it in well-understood terms.

As noted above, Taction cited a particular disparagement of prior art LRAs when making its disclaimer. Yet that was far from the only example. The shared specification—and particularly the section describing the state of the art—also repeatedly disparages prior art solutions with inadequate damping. *See, e.g.*, Appx126 (2:1-2) ("The problem of uneven frequency response is typically made worse by a lack of mechanical damping."); Appx126 (2:2-11) ("Leaving the system underdamped" produces a "peaked" frequency response that "degrad[es] audio fidelity" in headphones); Appx126 (2:63-67) ("Another drawback of [planar LRAs] was that no provision was made for critically damping those transducers. Accordingly the tactile acceleration frequency response was underdamped, with a claimed Q-factor of 1.5 to 3."). By contrast, the specification repeatedly touts the advantages over that prior art resulting from the "relatively uniform, non-peaked, [frequency] response" produced by the claimed invention. Appx130 (9:39-40); *see also, e.g.*, Appx130 (9:41-44) ("The absence of resonant peak in the

response makes it possible to reproduce the tactile component of a musical experience with previously unattainable high fidelity.").

The patents' figures do similar work. For example, in Figure 5C, the asserted patents illustrate the natural frequency response resulting from the claimed invention and the damping effect of its ferrofluid. *See* Appx128 (5:49-52); Appx130 (9:13-44). The graph in Figure 5C lacks a peak and is generally flat within the normal operating frequency range of the transducer: from 40-200 Hz.

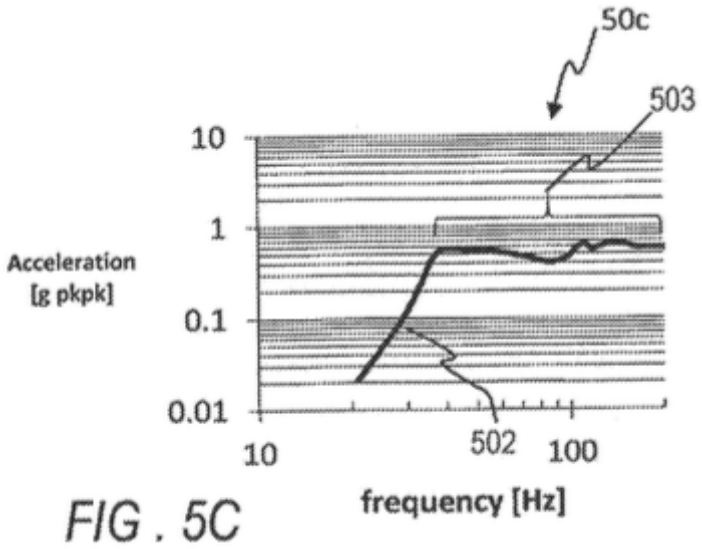

FIG . 5C

Appx116 (Fig. 5C); Appx130 (9:39-41); *see supra* 14. The specification also disparages prior art solutions that produce an "undesirable bump" in the frequency response graph, such as that illustrated in Figure 2B.

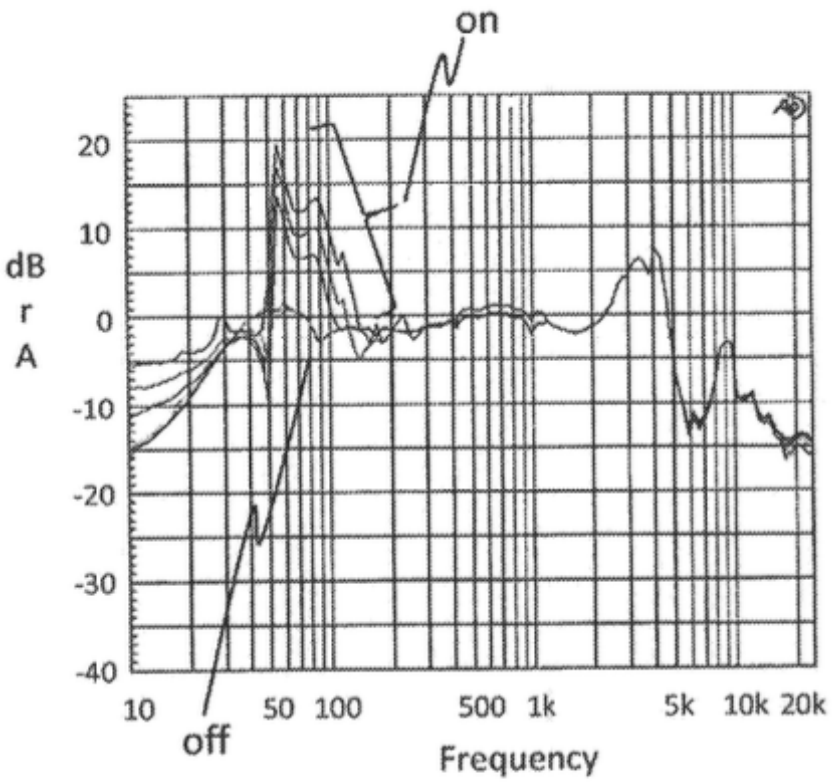

FIG . 2B
PRIOR ART

Appx113; Appx126 (1:57-2:10).

In the end, "[t]he public is entitled to take the patentee at his word," and here, "the [patentee's] word was that the invention is" a transducer with highly damped output. *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006); Appx1050. Finding disclaimer here also supports "the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution." *Data Engine Techs. LLC v. Google LLC*, 10

F.4th 1375, 1383 (Fed. Cir. 2021) (quotation marks omitted); *Omega Eng'g, Inc, v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003). This Court should affirm the district court's claim construction.

2. Taction's remaining arguments against disclaimer fail.

Taction offers a series of scattershot attacks to this conclusion. Each is meritless.

Taction several times suggests that neither party argued that Taction's "highly damped output" argument to the Examiner should be incorporated into the claim constructions, and that its first opportunity to address the argument was at the *Markman* hearing. *See, e.g.*, OB13-14, 22, 31. Not so. That disclaimer, and its equivalents using other but similar language, formed the centerpiece of Apple's proposed construction for the claim term "wherein the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz" and its variants. *See* Appx955-961. Apple's initial proposed construction required the claimed transducer to have sufficient damping in the form of a "substantially uniform, non-peaked [frequency] response," Appx955—language that Taction later confirmed was equivalent to the transducer having "highly damped output." Appx4847-4851. Apple

made clear that this was "a key feature" of all asserted claims and "central to the patent's teachings." Appx955. Apple specifically argued that the patents' specification disclaimed inadequately damped transducers by disparaging prior art transducers such as LRAs, which lacked sufficient damping, and by contrasting the "relatively uniform, non-peaked, response" of the claimed invention against that prior art. Appx957-958. And immediately thereafter, Apple stated that "Taction made *this same disavowal* in the prosecution history" of the '394 application, and detailed Taction's disclaimer of transducers lacking "highly damped output." Appx958 (emphasis added). Taction was on notice that the disclaimer it had made was at issue.

Taction also suggests that no disclaimer can apply here because the language in claim 15 of the '394 application differed from that in the asserted patents. *See, e.g.*, OB29. But a disclaimer, like the one here, which is based on the patent applicant's characterization of the invention itself is not tied to particular claim language. Because the applicant "describes the features of the 'present invention'" rather than the specifics of any limitation used to *describe* that invention, the applicant "implicitly alerts the reader that 'this description *limits the*

scope of the invention.'" *Luminara*, 814 F.3d at 1353 (emphasis added). And because no applicant can claim more than the invention, regardless of what limitations are included in the claims, a disclaimer that goes to the invention itself does not travel with claim language.[9]

In any case, the language in claim 15 of the '394 application was not materially different from the claims asserted here. The claim language allowed in claim 15 included the limitation "wherein the motion of the moveable member is damped to reduce the Q-factor of the vibration module over the frequency range of 40-200 Hz in response to steady-state sinusoidal signals applied to the at least one conductive coil." Appx1062. Each of the asserted independent claims includes markedly similar language. *See, e.g.*, Appx133 (claim 17) ("the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz in response to electrical signals applied to the

[9] Oddly, Taction also argues that there is no disclaimer because at the time of the Office Action, claim 15 of the '394 application included a means-plus-function limitation that would have restricted damping mechanisms to those expressly disclosed in the specification—namely, ferrofluid. OB45-47. But all asserted claims also require damping by ferrofluid. Taction does not (and cannot) explain why *more restrictive* language in the asserted claims would eliminate an earlier disclaimer of claim scope.

conductive coil"); Appx158 (claim 9) ("the viscous ferrofluid reduces at least a resonance within a frequency range of 40-200 Hz in response to signals applied to the plurality of conductive coils"); *see also* Appx3209.

Taction asserts that this Court cannot affirm the district court's order without creating a "per se" rule that any mention of "the invention" automatically surrenders claim scope. This argument is a red herring. As Apple has explained above (at § II.A.1), the clear and unmistakable disclaimer produced by Taction's express statement about the scope of its invention is further supported by the disparagement of prior art lacking that same feature, and by other disclosures in the common specification and figures. The district court correctly recognized as much. *See* Appx13 ("These statements in the prosecution history *when combined with the above statements in the specification* represent a clear and unequivocal disavowal … ." (emphasis added)). This Court should do likewise.

Taction also argues that disclaimer cannot apply because the word "highly" is a "term[] of approximation" that would "require a 'difficult factual determination.'" OB43-44 (citing *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 908 (Fed. Cir. 2005)). But in *Playtex*, the

court faced claims to "substantially flattened surfaces" that the patent distinguished from prior art disclosing "generally cylindrical" surfaces. *Id.* But nothing in the *Playtex* specification quantified the flatness of the surface, which a court would ordinarily use to set a numerical limit on a claim term of this type. *Id.* at 907; *see, e.g.*, *Iridescent Networks, Inc. v. AT&T Mobility, LLC*, 933 F.3d 1345, 1352 (Fed. Cir. 2019) (limiting "high quality of service connection" to a minimum of 1Mb/s where a figure identified 1-300Mb/s connections as "high QoS"). Here, by contrast, both parties' experts acknowledge that a skilled artisan is well-acquainted with a precise mechanism for measuring the degree of damping in a mechanical system: the Q-factor. Appx4145 ¶ 561; Appx4101 ¶ 77. And the specification clearly distinguishes the claimed invention from prior art with too-little damping, as measured by a Q-factor greater than 1.5. *See infra* § II.C. Thus, no difficult factual determination is required to determine, at a minimum, that Taction relinquished any claim to transducers whose output was less "highly damped" than the numerical limit provided in the specification.[10]

[10] Taction is also incorrect that disclaimer cannot be found here because another claim of the '394 patent expressly recited a Q-factor under 1.5.

Citing *Biogen, Inc. v. Berlex Laboratories, Inc.*, 318 F.3d 1132, 1139 (Fed. Cir. 2003), Taction objects that the phrase "highly damped output" appears only once in the prosecution history of a non-asserted patent, and that therefore its disclaimer does not "automatically" apply here. OB42-43. But *Biogen* is easily distinguishable. There, an applicant made limiting statements based on an erroneous reading of a specific prior art reference while prosecuting claims of one application, but discovered its error and corrected its description of the reference in a subsequent application. 318 F.3d at 1139. Under such circumstances, the panel held that the applicant's prior disclaimer—based on the incorrect reading—did not apply to the subsequent application. *Id.* at 1140. No such circumstances exist here; Taction alleges no misinterpretation or later, better understanding of the prior art. Nor can it credibly deny that "prosecution disclaimer may arise from disavowals made during the prosecution of ancestor patent applications." *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1314

See OB47. Prosecution disclaimer "preclud[es] patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." *Genuine Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1374 (Fed. Cir. 2022) (quoting *Omega Eng'g*, 334 F.3d at 1323).

(Fed. Cir. 2007) (quoting *Omega Eng'g*, 334 F.3d at 1333). And, despite Taction's protests, Taction's statement to the Examiner is amply supported by other portions of the asserted patents' specification, as explained above (at § II.A.1).

Taction separately suggests that the mere fact that the district court engaged in clarifying claim construction means that Taction's disclaimer cannot have been "clear and unmistakable." OB48-49. But while Taction cites two cases, neither offers any authority for the proposition that the words of a disclaimer cannot be further interpreted by the court. *Omega Engineering* stands only for the uncontroversial proposition that a disclaimer must be unequivocal to have a limiting effect. 334 F.3d at 1324. And *Avid Technology, Inc. v. Harmonic, Inc.*, just states the general rule that a disclaimer must "on its face … exclude" the disclaimed subject matter. 812 F.3d 1040, 1046 (Fed. Cir. 2016). The *Avid* court's remarks were directed to statements that on their face disclaimed a central computer controller that "performs both of two functions," while the party arguing disclaimer sought to exclude controllers performing only one of those functions. *Id.* No such circumstance exists here—Taction's prosecution disclaimer applies to a

single feature of a transducer: the lack of "highly damped output." That is precisely the disclaimer that Apple argued, and the district court found.[11]

Taction's disclaimer of transducers lacking "highly damped output" is both clear and unequivocal. This Court should affirm the district court's finding of disclaimer and construe all asserted claims to exclude transducers lacking "highly damped output."

B. The district court correctly concluded that "highly damped output is achieved by mechanical damping."

The district court correctly concluded that this Court's claim construction rules and § 112's written description requirement warrant limiting the asserted claims to transducers that achieve "highly damped output" by way of mechanical damping.[12] A patent that exclusively

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[11] Taction also argues that the district court's remarks at the *Markman* hearing suggest that "highly damped output" is a result of the invention, not a feature. Taction is mistaken. When the court *asked* Apple's attorney at that hearing whether "highly damped output" was just an "aspirational goal" of the invention, Apple's attorney responded by pointing to the disclaimer language and its express characterization of the invention itself. *See* Appx214. The court accepted that argument and moved on. Appx214.

[12] There is no dispute that the district court's mechanical damping construction follows from the "highly damped output" disclaimer. *See* OB50–52.

discloses mechanical damping cannot support claims that encompass generating "highly damped output" by way of non-mechanical closed loop control. Appx70-73. Taction does not dispute that, under the district court's construction, the district court correctly granted summary judgment. *See* OB50-57.

1. The written description requires limiting "highly damped output" to mechanical damping.

Although "claims are not limited to the [specification's] preferred embodiment[s]," courts must construe claims so they do not "enlarge what is patented beyond what the inventor has described [in the specification] as the invention." *Network, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001). This principle flows from 35 U.S.C. § 112, which provides that patents must include a "written description" demonstrating that the patentee had "possession" of the full scope of the claimed invention when the patent was filed. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). This written description requirement is part of the *quid pro quo* of the patent grant: It ensures that the patent monopoly is limited to what an inventor actually invented, and it ensures that the public receives a

meaningful disclosure in exchange for their exclusion. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002).

In light of this principle, the Court has made clear that "the scope and outer boundary of claims is set by the patentee's description of his invention." *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1338 (Fed. Cir. 2006); *id.* at 1344 (construing claims to "implement the invention described in the specification"). When a written description would be insufficient to show that the inventor possessed the full scope of the claims as construed, the Court will instead adopt a construction that squares with the patent's disclosure and avoids invalidity under § 112. *See Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016); *LizardTech, Inc. v. Earth Res. Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005) (the specification must show a skilled artisan that the patentee is in possession of "the full breadth of the claim").

Applied here, these principles warranted the district court clarifying its "highly damped output" disclaimer to provide that the highly damped output is the result of the mechanical damping disclosed in the specification. As the district court recognized, *see* Appx71-72, the

patent's written description exclusively describes mechanical damping, and particularly focuses on the use of ferrofluid. In describing the invention, the specification explains that "vibration … may be damped using a suitable approach, such as the shearing of a layer of ferrofluid, oil, grease, gel, or foam, or the passage of air through an orifice." Appx127 (4:6-9). Elsewhere, the specification states the device is "damped by [a] thin layer of viscous ferrofluid," Appx129 (8:39-40), and specifies that the invention includes "damping fluid (e.g. viscous ferrofluid …)," Appx130 (9:37). It also criticizes the prior art for its lack of mechanical damping, explaining that "[t]he problem of uneven frequency response [in the prior art] is typically made worse *by a lack of mechanical damping*." Appx126 (2:1-2) (emphasis added); *see also* Appx126 *(*2:11-13). And, tellingly, every single claim explicitly calls for "ferrofluid" as the damping mechanism.[13] At no point do the patents suggest that Taction invented apparatuses that achieve highly damped output using any form of non-mechanical damping.

[13] E.g., "wherein the ferrofluid reduces at least a mechanical resonance within the frequency range of 40-200 Hz," Appx132 (claim 1); *see also* Appx132-133 (14:42-16:52); Appx157-159 (14:46-17:11).

There is no dispute on this point. Taction's technical expert conceded that the patents only describe damping that is "mechanical in nature." Appx4385 (l. 15). And the expert characterized the patent's "innovat[ion]" as the "combination of the mechanical elements, including the ferrofluid … with the goal of creating a highly damped output." Appx4385-4386 (ll. 24-4). Thus, the expert recognized that what the inventors invented, and what the written description disclosed, was a transducer that achieves highly damped output using "mechanical elements" like "ferrofluid." Appx4386 (ll.1-2).

In similar situations, this Court has routinely construed claims to go no further than the written description supports. In *Medicines Company v. Mylan, Inc.*, this Court concluded that "efficient mixing"—a claim term it adopted based on prosecution history disclaimer—"must be defined in terms of the particular process or processes identified in the specification." 853 F.3d 1296, 1307 (Fed. Cir. 2017). Similarly, in *Ruckus Wireless*, this Court limited "communication[] path" to the wired communication disclosed in the specification because construing the term to encompass wireless communications would likely render the claim invalid for lack of written description. 824 F. 3d at 1004*; see also*

N. Am. Vaccine, Inc. v. Am. Cyanamid Co., 7 F.3d 1571, 1577 (Fed. Cir. 1993) (construing claims narrowly to avoid § 112 issue); Appx71 (citing *Meds. Co.*, 853 F.3d at 1309).

The same principle governs here. Every aspect of the intrinsic record makes clear that what Taction invented and disclosed was an apparatus that uses mechanical damping (specifically ferrofluid) to achieve highly damped output. *See* Appx127 (4:6-9); Appx129 (8:39-40); Appx130 (9:37); Appx132-133 (14:42-16:52); Appx157-159 (14:46-17:11). "[T]o attribute to the claims a meaning broader than any indicated in the patents and their prosecution history would be to ignore the totality of the facts of the case and exalt slogans over real meaning." *Ormco*, 498 F.3d at 1316 (using specification to limit scope of disclaimer-based claim limitation).

Given the scope of the patent's disclosure, construing the "highly damped output" claim requirement to encompass highly damped output achieved by non-mechanical means would therefore risk invalidity under § 112 and undermine the principle that claims must be "tether[ed] … to what the specification [] indicate[s] the inventor actually invented." *Meds. Co.*, 853 F.3d at 1309.

2. Taction's arguments fail to engage with the district court's rationale.

Taction argues that the patents do not clearly and unmistakably disclaim non-mechanical damping. OB52-55. But the district court made clear here it was not relying on disclaimer: "[t]he issue is not whether there is a disavowal in the specification related to mechanical damping; rather, the issue is whether the specification discloses any form of damping other than mechanical damping. It does not." Appx71.

In any event, none of the aspects of the specification on which Taction relies to argue against disclaimer undermines the district court's conclusion.

Taction insists that the patents are concerned with a lack of damping in general and not "focused *exclusively*" on the absence of mechanical damping. OB54 (emphasis in original). But even assuming that the patents are concerned generally with a lack of damping, there can be no dispute that *mechanical* damping was the inventors' solution.

Similarly, Taction observes that the specification sometimes uses the word "damping" without explicitly specifying that it means "mechanical damping"—for example when it states that "the movable member *can be damped,*" without including any "restrictive adjective

before 'damped.'" OB53 (emphasis in original) (quoting Appx127). But, again, the specification's occasional use of the word "damping," without a modifier, to describe claims that explicitly call for damping achieved by "ferrofluid," does not suggest that the inventors were in possession of an apparatus that achieved highly damped output by non-mechanical means (and certainly not by way of closed loop control).

Taction states that when the specification mentions "oil, grease, gel, or foam" as potential damping mechanisms, it prefaces that list by stating that vibrations may be "damped using a suitable approach, such as [the listed mechanical damping mechanisms]" and characterizes the various mechanical damping mechanisms as "example[s]." OB53-54 (quoting Appx127 (4:6-9)). But that only proves Apple's point. By offering a set of options prefaced by the phrase "such as," the patents are "indicat[ing] that only things of a type similar to the itemized ones are covered." *Int'l Bus. Machs. Corp. v. Iancu*, 759 F. App'x 1002, 1007 (Fed. Cir. 2019) (holding that PTAB erred in construing a term to encompass physical equipment rather than business services like those listed in the specification). Against the background of a specification that describes mechanical damping and claims that recite ferrofluid, the

use of the phrase "such as" does not suggest that Taction's invention encompasses an apparatus that achieves highly damped output using any non-mechanical damping means. *Id.*

Taction also accuses the district court of reading limitations from the specification into the claims. OB55. But, as this Court made explicit in *Ormco*, "interpreting the claims in light of the specification" to ensure the claims satisfy § 112 requirements is not the same thing as importing limitations from a particular embodiment. 498 F.3d at 1316. There, the Court explained that, even though the language of the claims "does not expressly recite automatic control of the finish tooth positioning, that is what [the claims] mean, and that is all that the specification describes." *Id.* And it made clear that, in so holding, it was "mindful of the precaution that we must not incorporate into the claims limitations only found in the specification"; it was "not doing so here, nor [was] the district court." *Id.*

For similar reasons, Taction is wrong to suggest that the district court's analysis is improper because this is not a means-plus-function limitation governed by § 112(f). OB53; *see* 35 U.S.C. § 112(f) (providing that claims may recite a function that will be limited to the means

described in the specification). The principle that claims should be construed to reach no further than the patent's disclosure applies equally outside the means-plus-function context. *Meds. Co.*, 853 F.3d at 1307 & n.6 (noting that there was "no contention … that that claims are means-plus-function claims governed by 35 U.S.C. § 112(f)"); Appx73 (district court rejecting Taction's argument that it was relying on a "means-plus-function analysis").

Taction also says the district court relied on inapposite cases that involve "us[ing] examples in the specification to construe an ambiguous claim term," while "no term in the patent claims" is ambiguous here. OB55-56. But this Court has routinely construed claims to correspond with the written description in the absence of any ambiguity in claim language. *See, e.g.*, *Ormco*, 498 F.3d at 1316. And, in any case, Taction's own brief makes clear that it believes "highly damped output" (which is part of the claims as construed) is the kind of term requiring a clarifying construction. *See* OB22 (calling "highly damped output" a "non-scientific adjective" that describes "results"); *Meds. Co.*, 853 F.3d at 1309 (recognizing that "efficient mixing" has no set meaning to a skilled artisan).

Nor can Taction prevail by asserting that "the 'comprising' transition" means the claims may "cover a far broader array of damping features" than disclosed. OB46. Use of the word "comprising" means that the claimed device can include additional features *beyond* the claim limitations. *Outside the Box Innovations, LLC v. Travel Caddy, Inc.*, 695 F.3d 1285, 1305 (Fed. Cir. 2012). It "does not change the elements that are stated in the claim." *Id.* (holding that "comprising" did not allow a "plywood-stiffened fabric panel" to read on claims requiring a "flexible … fabric panel"). And it does not insulate a claim from the requirements of § 112. *Ruckus Wireless*, 824 F.3d at 1002, 1004 (construing claim including "comprising" to avoid § 112 issues).

Last, Taction argues that it "would not make linguistic sense" to interpret a limitation requiring a particular level of damping to require "a particular damping mechanism." OB56. *Medicines* is instructive. There, this Court refused to elevate the formulation of a disclaimer over its substance, explaining that "[w]hether we view the patentee as having disclaimed inefficient mixing or construe 'batches' to require efficient mixing … at bottom, the compounding process must be one that uses efficient mixing." 853 F.3d at 1305; *id.* at 1309 (concluding

that efficient mixing requires the process disclosed in the specification). Here, too, the fact that the district court initially framed the "highly damped output" disclaimer as a stand-alone requirement rather than construing the damping limitations themselves to require "highly damped output" does not change the "real meaning" of the patent. *Id.* at 1306 (quoting *Ormco*, 498 F.3d at 1316).

C. The district court correctly concluded that "highly damped output" requires a Q-factor of less than 1.5.

As explained above (at § II.A), the shared specification of the asserted patents makes clear, in multiple ways, that a sufficient amount of mechanical damping is a key feature of the claimed transducer. The specification also refines this idea by quantifying how much mechanical damping is required to bring an accused transducer within the asserted ambit of Taction's claims. The specification unequivocally describes the underdamped prior art solutions it disparages as having a "claimed Q-factor of 1.5 to 3." Appx126 (2:63-67). It also describes prior art systems with a "high Q-factor" as "useless" because they are unable to reproduce "low frequency tactile effects." Appx126 (2:31-33). And a person of skill in the relevant art would know that a Q-factor simply measures the amount of damping in

a system. Appx4145 ¶ 561. Thus, the specification gives a concrete numerical limit for the level of damping against which it is contrasting the claimed invention.

That is enough to exclude any transducer with a Q-factor over 1.5 from the scope of any claims supported by this specification. The specification unequivocally describes the underdamped prior art solutions it disparages as having a "claimed Q-factor of 1.5 to 3." Appx126 (2:63-67). S*ee, e.g.*, *Chicago Bd. Options Exch., Inc. v. Int'l Sec. Exch., LLC*, 677 F.3d 1361, 1372 (Fed. Cir. 2012) (holding that repeated disparagement of features of prior-art options-trading systems means that those features were outside the patent claims). The specification also describes prior-art systems with a "high Q-factor" as "useless." Appx126 (2:31-32). *See SafeTCare Mfg., Inc. v. Tele-Made, Inc.*, 497 F.3d 1262, 1269-70 (Fed. Cir. 2007) (noting portions of the specification describing "an important feature" of the claimed invention). The specification describes damping as a feature that is particularly important and then describes why alternatives are inadequate. *See, e.g.*, *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350, 1354-55 (Fed. Cir. 2006) ("the specification emphasizes the importance

of [the claimed feature] in solving the problems" of the prior art). The specification's multiple derogatory references to undamped and underdamped transducers, *see, e.g.*, Appx126 (2:1-3, 11-13, 31-33, 65-67), "go[] well beyond" merely "expressing the patentee's preference" for one type of solution, *Chicago Bd.*, 677 F.3d at 1372—they instead inform a skilled artisan that the claimed invention excludes such solutions. That view is fully supported—indeed, confirmed—by Taction's own statement to the Examiner specifically distinguishing otherwise anticipatory prior art that lacked "highly damped output." *See supra* §II.A.1.

Taction's principal objection to this conclusion rests on its inappropriately narrow focus on a single short passage in the specification. Taction concedes, as it must, that a court can correctly "find disavowal of claim scope through disparagement of a particular feature," just as the shared specification does here. *See* OB 58-59. But Taction attempts to exclude from this Court's consideration any mention of damping aside from the single mention of a Q-factor in column 2. *See, e.g.*, OB58-59 (arguing that a single sentence does not amount to "repeated derogatory statements"); OB62 (arguing that the

only mention of Q-factor is in the Background section and that the specification does not refer to the advantages, importance, or essentiality of a particular numerical Q-factor); OB62-63 (arguing that there is "no other reference to a Q-factor"); OB63 (arguing that there is no "more" here); OB64 (decrying the "single" reference to a Q-factor, citing *Epistar Corp. v. Int'l Trade Comm'n*, 566 F.3d 1321, 1335 (Fed. Cir. 2009)). As shown above (at § II.A), the specification includes a clear and oft-repeated disparagement of a feature of the prior art—the lack of sufficient damping in various actuators. Taction offers no authority holding that the disparaged feature must be *quantified* over and over again to amount to disclaimer. By focusing only on the phrase "Q-factor" while ignoring the many mentions of insufficient damping throughout the specification and figures, *see, e.g.*, Appx116 (Fig. 5C); Appx126 (2:1-3, 11-14, 31-33, 65-67); Appx130 (9:14-44), much of Taction's briefing simply misses the mark.

Taction's other arguments fare no better.

Taction argues that the district court misunderstood the term "critical" damping, as referenced in the specification, to mean "an ideal level of damping." OB60-61. But the single reference to the record

Taction provides says nothing of the sort. *See* Appx74. Rather, the district court noted that the specification "makes clear" that a too-high Q-factor "is an important drawback" of the prior art, then provides multiple citations to the specification that detail the invention's purpose—"to provide 'novel audio-frequency tactile transducers and devices,'" Appx74 (citing Appx127 (3:46-47))—and that an excessively high Q-factor renders transducers "useless" for that purpose, Appx74-75 (citing Appx126 (2:31-34)). *Based on those citations*, and not on any reference to "critical damping," the district court correctly concluded that the specification clearly states that a Q-factor over 1.5 "is not just a drawback, but a significant drawback for the purposes of the invention claimed in the asserted patents." Appx75. Taction does not engage with the district court's actual reasoning, much less show that it was incorrect. And its follow-on arguments about the phrase "no provision for critically damping" are similarly based on the flawed premise that the district court misunderstood the meaning of "critically damped," and are therefore beside the point. *See* OB60-61.

Taction offers two throw-away arguments that also miss the mark. It suggests that this Court cannot limit "general descriptive

words" in its claims to a numerical range. OB64-65. But the district court's claim construction does not key on specific claim language; it relies instead on Taction's own description of the invention as a whole in both the specification and the prosecution history. As noted above (at § II.A), disclaimer is appropriate where a patentee's statements about the invention itself limit the scope of what it may claim.

Taction relies on claim differentiation to argue that it can evade the consequences of its own statements by expressly claiming a Q-factor less than 1.5 in certain claims. OB65. But the district court correctly rejected this argument because the doctrine of claim differentiation is merely a presumption, "not a hard and fast rule." Appx77 (quoting *Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022)). As the district court recognized, where the specification and prosecution history provide a disclaimer, "any presumption created by the doctrine of claim differentiation will be overcome." *Id.* (quoting *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011)). This Court should reach the same conclusion.

* * *

The district court correctly found that Taction disclaimed transducers lacking "highly damped output." Because Taction abandoned its only timely disclosed infringement theory for the "highly damped output" limitation, the district court properly granted Apple summary judgment. In addition, the district court correctly construed the "highly damped output" limitation to require both mechanical damping and a Q-factor of 1.5 or higher. Because Apple devices meet neither requirement, the district court properly granted summary judgment on these grounds as well.

CONCLUSION

The Court should affirm the district court's summary judgment of non-infringement.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Fed. Cir. R. 32(b)(1) because this brief contains 14,000 words, excluding the parts of the brief exempted by Fed. Cir. R. 23(b)(2) and Fed. R. App. P. 32(f).

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